### One Micron Q-switched Single Crystal LIDAR Fiber Laser, Phase I



Completed Technology Project (2004 - 2004)

### **Project Introduction**

There is an important need for compact, light weight, short pulse laser sources for LIDAR applications. Recently, over 100 Watts of output power has been demonstrated from a glass fiber laser. Two advances have made this possible. These are the availability of high power diode lasers for pumping and the development of double cladding of the fibers. For several reasons it is possible to achieve significant improvements in these results by using single crystal fibers rather than glass fibers. Using the Laser-Heated Pedestal-Growth (LHPG) technique to grow single crystal fibers of Yb:YAG, we are proposing to develop a diode-pumped, double-clad fiber laser of Yb:YAG emitting at 1.03 microns and Q-switched using a new passive material.

### **Primary U.S. Work Locations and Key Partners**



Organizations Performing Work	Role	Туре	Location
☆Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Lasergenics Corporation	Supporting Organization	Industry	San Jose, California



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### **Table of Contents**

Project Introduction	
Primary U.S. Work Locations	
and Key Partners	1
Organizational Responsibility	
Project Management	
Technology Areas	

## Organizational Responsibility

# Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

#### **Lead Center / Facility:**

Goddard Space Flight Center (GSFC)

#### **Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer



### Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
California	Maryland

## **Project Management**

**Program Director:** 

Jason L Kessler

**Program Manager:** 

Carlos Torrez

**Principal Investigator:** 

Richard Schlecht

## **Technology Areas**

#### **Primary:**

- TX08 Sensors and Instruments
  - └─ TX08.1 Remote Sensing Instruments/Sensors
    └─ TX08.1.5 Lasers

